

REMARKS

By the *Office Action* of 21 June 2002, Paper No. 7, Claims 10-28 are pending in the Application, Claims 20-28 withdrawn, and Claims 10-19 rejected. By the present *Response and Amendment*, the Applicant clarifies the invention, and in so doing, overcomes the rejection of the Claims in view of the cited art.

1. Election/Restriction

Applicant affirms the election of Group I, Claims 10-19.

2. Title

Applicant respectfully submits that the Title of the application should remain the same, as new apparatus Claims are submitted with this *Response and Amendment*. The new apparatus Claims and the pending process Claims are not distinct, as the process as claimed can not be practiced by another materially different apparatus or by hand, and as the apparatus as claimed can not be used to practice another and materially different process.

3. The Specification

Applicant amends the Specification as requested by the Examiner.

4. The Pending Claims

The present invention concerns the manufacture and design of cigarette packs of the hinge-lid type that are typically made of thin cardboard, and are therefore (compared to soft-cup packs) relatively stable dimensionally. The outer wrapper is shrink-wrap film, and is thus a thermally sealable film with a heightened shrinkage characteristic when subjected to heat.

The problem of the prior art solved by the present invention is that, on the one hand, heat and pressure must be applied for the thermal sealing of the folding tabs of the outer film, and, on the other hand, *however*, premature shrinkage resulting from the introduction of heat must be *avoided* because the actual shrinkage process should not occur until the outer wrapper has been folded.

The present invention comprises a combination of features which are novel and non-obvious over the cited prior art. The Claims have been clarified to recite at least one such novel and non-obvious feature.

The invention essentially is a method and apparatus to provide a pack with an outer wrapper that has a fold-free appearance.

The present invention:

[i]s based on the finding that, upon initiation of the shrink-wrapping and/or heat treatment, the outer wrapper has to be completely finished, that is to say all the folding tables have to be folded into the correct position and fixed in [] position. *Page 2, Lines 19-23.*

In conventional processes, the tabs of the outer wrap are sequentially connected with large-surface-area sealing, which initiates the shrink-wrapping process, prior to further folding steps. *Page 2, Lines 25-29.* Yet, this results in the permanent deformation of the outer wrapper, since all the folding steps are not completed prior to shrink-wrapping. *Page 2, Lines 30-24.*

The present invention overcomes this disadvantage in at least one way by utilizing a set of *folding* and *temporary* maintaining steps until the outer wrapper has been fully folded:

... as a result of the preliminary sealing and/or preliminary tacking [of the present invention], fixing of the outer wrapper in the correct folding position is completed *without* a shrink-wrapping treatment being initiated by said tacking and/or preliminary sealing. *Page 2, Lines 33-27 (emphasis added).*

Thus, the present invention comprises two distinct steps to provide the fold-free appearance of the outer wrapper, and to limit the initiation of the heat-shrinking of the outer wrapper until the folding steps are completed:

- in a sealing or tacking process, the formed folding tabs of the outer wrapper are connected to each other only temporarily,
- then the completely folded and finished *packs* with the temporarily connected tabs are fed to a sealing apparatus for full-surface and permanent seals to the folding tabs of the outer wrapper.

Accordingly, in the invention, the very sensitive outer wrapper (film) is *temporarily fixed* in place after each folding process. At this time, the packs may remain in a folding station of the apparatus. Preferably, the packs are held in a positive-locking manner in pockets of folding turret 35, and in a tunnel-like folding path 45.

Preferably, the fixing of the folding tabs by temporary means, or of "pre-sealing", is therefore made directly at the place of folding when the pack with the finished folding tabs is in an unchanged, fixed position within the turret pockets or within the folding path 45. The folding tabs are in any case connected to each other *such that any shift of position during further transport or further handling can be ruled out*. Thus, the packs can be transported freely, for example through the upright pack tower 45, without the folds opening either partially or in full, or that the folding tabs shift with respect to their relative position to one another.

In the region of the spatially distant sealing path 50, the folding tabs are *then* sealed across their full surface, and thus permanently, with increased temperature, sufficient pressure and sufficient time employed. This final, permanent sealing of the folding tabs is not possible in the region of the folding assemblies 35 and 45. Due to the short cycle times of the revolving folding turret and the transport along the folding path 45, it is not possible to transfer the sufficient sealing temperature, sufficient sealing pressure for an appropriate period of time as required for sealing. It is therefore common practice that separate sealing stations are located downstream of the folding assemblies. *The present double sealing process according to a preferred embodiment, namely pre-sealing or tacking during the short cycle times in the region of the folding assemblies, on one hand, and complete, full-surface sealing in the region of a separate sealing assembly, on the other hand, is a fundamentally new work step which results in a markedly improved quality of packs with outer wrappers*. This is particularly true when shrink-wrap film is used, with an additional shrinking treatment taking place in a shrinking station following the sealing path 50.

None of the cited references, either alone or in combination, disclose this double sealing process, namely, first temporarily maintaining the folded tabs, and second, distant of the first step, fixedly maintaining the tabs.

5. Claim Rejections under 35 U.S.C. § 102/103

Claims 10 and 14-15 are rejected under 35 U.S.C. § 102 as being anticipated by Mattei et al. Claims 11-13 and 16-19 are rejected under 35 U.S.C. § 103 as being unpatentable over Mattei et al. in view of McDaniel, and further in view of Havens et al. It is respectfully submitted that the pending Claims are novel over Mattei et al., and non-obvious over Mattei et al. in view of McDaniel, and further in view of Havens et al.

The first sealing step of Mattei et al. involves the longitudinal or tubular seam, and involves the permanent, full surface contact, not the temporary seal of the present invention. Side tabs 61, 63 are connected in their full surface to each other in the region of an overlap. Sealing elements 45 are used for this which clearly extend across the full width of the side wall. This reference therefore fails to anticipate the present Claims, as the concept of pre-sealing and "main sealing" in the region of different assemblies is neither taught nor suggested in Mattei et al.

Instead, Mattei et al. provides a one step, full-surface or final sealing process, which is divided into three immediately successive sealing cycles. This is necessary because the short cycle rate of the folding turret does not allow sufficient time to achieve thermal sealing of the folding tabs in a single step at the required maximum temperature. In a single step, the required temperature would have strong adverse effects on the pack contents, namely the very sensitive cigarettes. Mattei et al. simply discloses a three sub-step final approach to permanent sealing, and not two distinctly different and locationally distinct temporary and then permanent sealing step. A ^{1st - Seal} "pre-sealing" step and a ^{2nd - Seal to finish the sealing of the package} "main sealing" step is not shown in Mattei et al. This is also true of the operation of the sealing elements 57, which in Mattei et al. assigns to the end and base folds.

Further, while Manei et al. relates to a wrapper made of thermally sealable film, this reference does not address the outer wrapper of a cigarette pack, but the inner liner of a cigarette group. The appropriate blank 4 is folded directly around the formed cigarette group and then closed in the region of a longitudinal or tubular seam as well as in the region of the end and base tabs by means of thermal sealing.

McDaniel suggests the use of hot-melt glue that is applied at raised temperature to the parts (folding tabs) to be glued, then hardens and after folding is reactivated after the folding tabs with the hot-melt glue are folded in order to make the connection. The present invention is novel not for the form of the folding tabs, but the interactions between pre-sealing and full sealing, and its object of a preliminary connection that holds only for a limited period and load, and a "final sealing". In the invention, the latter is usually conducted in the region of a usual sealing station (sealing path 50).

Havens et al. was cited to demonstrate that shrink-wrap film is basically known. Applicant does not allege novelty in the shrink-wrap film, or the use of such shrink-wrap film as an outer wrapper in the production of cigarette packs. In fact, any film used for this purpose is subject to a process of shrinkage. Standard film exhibits a shrinkage rate of approximately 4% to 6%. Furthermore, special "shrink-wrap film" can be employed which shrink to the order of 10% to 16% when heat is applied.

The present invention is concerned with overcoming problems which arise in the use of thermally sealable film when the folding process and the process of sealing the folding tabs are conducted at different locations, namely in spatially separate assemblies.

6. Fees

A three month extension of time petition and fee are enclosed, wherein the Applicant authorizes the extension of time fee to be charged to deposit account 20-1507.

No fees are believed due for the Claims, as pending the Claims number twenty (20), with three (3) being independent.

The Office is nonetheless authorized to charge the deposit account 20-1507 for any fee deficiency.

CONCLUSION

By the present *Response and Amendment*, the Application has been in placed in full condition for allowance. Accordingly, Applicant respectfully requests early and favorable action. Should the Examiner have any further questions or reservations, the Examiner is invited to telephone the undersigned Attorney at 404.885.2773.

I hereby certify that this correspondence is submitted via facsimile to Examiner Sarah Towler of Art Unit 3721 of the United States Patent and Trademark Office.

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Name of Applicant, Assignee, or
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23 December 2002

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APPENDIX A

Page 4, Lines 21-27:

The end wall 18 and base wall 19 likewise comprise folding tabs, to be precise inner transverse tabs 23, 24 and outer, trapezoidal longitudinal tabs 25, 26. The tabs [23.. 26] 23, 24, 25, 26 partially overlap one another. In Figure 2, the overlap region, and thus the region of the tabs [23..26] 23, 24, 25, 26 which are connected to one another by sealing, is illustrated as a blackened and/or hatched surface area.

Page 5, Lines 22-38:

Thereafter, folding of those parts of the outer wrapper which project beyond the pack 10 is completed, the end wall 18 and base wall 19 being formed in the process. In order to fix the folding tabs [23 .. 26] 23, 24, 25, 26, likewise small-surface-area tacking connections produced by heat sealing, namely in each case two tacking strips 29, 30, are provided. These are provided such that all the folding tabs of the end wall 18 and base wall 19 are covered, that is to say are connected to one another locally. This is because the tacking strips 29, 30 are located in a region in which transverse tabs 23 or 24 and the two longitudinal tabs 25, 26 overlap one another in each case.

Following the tacking of the folding tabs 20, 21 and/or [23...26] 23, 24, 25, 26, said regions are sealed in a conventional manner. This brings about, at the same time, shrinkage of the film of the outer wrapper 13. It is additionally possible, however, for the pack 10 to be subjected to a separate shrink-wrapping process.

APPENDIX B

10. (once amended) A process for producing a dimensionally stable pack made of cardboard, in particular a hinge-lid box for cigarettes, comprising the following sequential steps:

(a) providing a folding and sealing apparatus for folding and sealing the pack;

((a)b) providing the pack with an outer wrapper having folding tabs, the outer wrapper made of sealable film;

((b)c) folding the tabs of the outer wrapper into a region of tab overlap in a folding station of the folding and sealing apparatus;

((c)d) temporarily maintaining the tabs in the region of tab overlap by tacking or by tack connection; [and]

(e) transporting the pack to a permanent sealing station; and

CHP - CAMP ((d)f) fixedly maintaining the tabs in the permanent sealing station of the folding and sealing apparatus, the tabs being permanently sealed in the region of tab overlap by full-surface sealing.

11. (once amended) The process according to Claim 10, wherein the step ((c)) of temporarily maintaining the tabs in the region of tab overlap is by small surface-area spot sealing.

12. (once amended) The process according to Claim 10, wherein the step ((c)) of temporarily maintaining the tabs in the region of tab overlap is by small surface-area linear sealing.

13. (once amended) The process according to Claim 10, wherein the outer wrapper is a film that shrinks when subjected to heat treatment, and the process further comprising the sequential step ((e)g) of heat treating the outer wrapper to generate shrinkage of the outer wrapper.

29. (new) The process according to Claim 10, wherein the step of temporarily maintaining the tabs in the region of tab overlap occurs in the folding station.

30. (new) The process according to Claim 10, wherein the step of temporarily maintaining the tabs in the region of tab overlap occurs distant the folding station.

31. (new) The process according to Claim 10, wherein the step of providing the pack with an outer wrapper is by folding a blank of film, the blank forming the outer wrapper around the pack in a tubular shape.

32. (new) A process for folding and sealing an outer wrapper on a dimensionally stable pack comprising the following steps:

providing a blank for forming the outer wrapper, the outer wrapper having side tabs and a second set of tabs;

folding the outer wrapper around the pack in a tubular shape such that the side tabs overlap one another in a region of side tab overlap;

temporarily maintaining the side tabs, the side tabs being temporarily maintained in the region of side tab overlap;

folding the second set of tabs of the outer wrapper in a region of second tab overlap;

temporarily maintaining the second set of tabs, the second set of tabs being temporarily maintained in the region of second tab overlap;

transporting the packs with the temporarily maintained tabs to a side tab permanent sealing assembly; and

fixedly maintaining the side tabs in the side tab permanent sealing.

33. (new) The process according to Claim 32, wherein the step of temporarily maintaining the side tabs in the region of side tab overlap is by spot sealing.

34. (new) The process according to Claim 32, wherein the step of temporarily maintaining the side tabs in the region of side tab overlap is by a narrow sealing strip.

35. (new) The process according to Claim 32, wherein the step of temporarily maintaining the second set of tabs is by short narrow tacking strips.

36. (new) The process according to Claim 32, wherein the step of transporting the packs with the temporarily maintained tabs to a side tab permanent sealing assembly comprises moving the packs upward to a pack tower, and

wherein the step of fixedly maintaining the side tabs in the side tab permanent sealing assembly is by full-surface sealing in the pack tower.

37. (new) The process according to Claim 36, further comprising the steps of: transporting the packs with the fixedly maintained side tabs to a second tab permanent sealing assembly; and

fixedly maintaining the second set of tabs in the second tab permanent sealing assembly.

38. (new) The process according to Claim 37, wherein the step of transporting the packs with the fixedly maintained side tabs to a second tab permanent sealing assembly comprises moving the packs laterally to a sealing path, and

wherein the step of fixedly maintaining the second set of tabs in the second tab permanent sealing assembly is by full-surface sealing in the region of the sealing path.

39. (new) The process according to Claim 38, further comprising the step of conveying the pack with fixedly maintained side and second tabs to a shrinking station, wherein the pack is subjected to a shrinking process for the outer wrapper by means of surface heat transfer.

40. (new) The process according to Claim 32, further comprising the steps of: inserting the pack in a pocket of a folding turret such that the side tabs overlap one another in the region of side tab overlap;

pushing the packs out of the folding turret;

upwardly moving the packs into an upright tower wherein the side tabs are fixedly maintained; and

laterally moving the packs into a sealing path wherein the second set of tabs are fixedly maintained.

41. (new) An apparatus for folding and sealing an outer wrapper on a dimensionally stable pack, the outer wrapper having side tabs and at least one other set tabs being either or both end and base tabs, the apparatus comprising:

a first folding station for folding the outer wrapper around the packs;

a second folding station for folding the side tabs of the outer wrapper into a region of side tab overlap;

a first tacking station for temporarily maintaining the side tabs in the region of side tab overlap;

a third folding station for folding the at least one other set of tabs of the outer wrapper in a region of other set of tab overlap; and

a second tacking station for temporarily maintaining the at least one other set of tabs in the region of other set of tab overlap.

42. (new) The apparatus of Claim 41, further comprising:
a horizontal pack path on which spaced apart packs are conveyed to the first folding station;

a blank unit to supply a continuous material web of outer wrapper; and
a sealing assembly for fixedly maintaining at least one of the sets of tabs in the region of tab overlap.

43. (new) The apparatus of Claim 41, wherein the first folding station folds the outer wrapper around the packs in the form of a U-shape;

wherein the second folding station includes a folding turret with a plurality of pockets, each pocket for receiving a pack with outer wrapper;

wherein the first tacking station includes a heated tacking element and sealing tools;

wherein the third folding station includes a fixed folding finger and folding diverters; and

wherein the second tacking station includes spaced-apart tacking jaws.

44. (new) The apparatus of Claim 42, further comprising a shrinking station,
wherein the packs transported from the sealing assembly are subjected to thermal treatment for the purpose of shrinking the outer wrapper.